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Abstract

In Ramsay Hunt syndrome, contrast enhancement of magnetic resonance (MR) imaging seen in the affected facial nerve in the majority of cases, but its clinical significance has not been well investigated to date. The aim of this study was to elucidate the clinical significance of this imaging sign by quantitively investigating the correlation between the signal increase and swelling of the facial nerve. We also investigated the temporal change in this sign and its correlation with recovery. To investigate this correlation, we retrospectively evaluated swelling of the facial nerve in 16 patients with severe Ramsay Hunt syndrome who underwent both contrast-enhanced magnetic resonance imaging and facial nerve decompression surgery via a transmastoid approach alone or in combination with a middle cranial approach. All the patients had a Yanagihara score of ≤8 points and facial nerve degeneration of ≥90% confirmed by either a nerve excitability test or electroneurography. Swelling of the facial nerve was evaluated intraoperatively using a 4-point grading system. A significant correlation was observed between contrast enhancement on T1-weighted images and facial nerve swelling in the labyrinthine segment, geniculate ganglion, and pyramidal segment (P=0.030, P=0.018, and P=0.037, respectively). Furthermore, the contrast enhancement increased significantly as more time elapsed after the onset of facial palsy (mean ± standard error, 14.7 ± 2.3 days, range, 5–42 days) in the geniculate ganglion and pyramidal segment (correlation coefficient, 0.546 and 0.689, P=0.022 and P=0.002, respectively). Patients

with good recovery (Yanagihara score of ≥36) showed significantly lower contrast enhancement in the tympanic and mastoid segments (P=0.021 and 0.020, respectively) than those who with poor recovery. In this study, in particular segments of the facial nerve, contrast enhancement on T1-weighted image correlated with facial nerve swelling and recovery. These observations underscore the clinical significance of contrast enhancement on T1-weighted images in patients with Ramsay Hunt syndrome.